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Small Lake Inventory and Enhancement Program Preliminary Progress And Enhancement Report On 1991 Field Activities

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The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

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This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

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INTRODUCTION:

During the 1991 field season, fifteen small lakes were investigated, for the purpose of identifying enhancement opportunities. Eight lakes had no, or limited records of previous studies. These lakes were surveyed (1991), as Lake Inventories to Ministry of Environment standards. Seven lakes had been previously studied, these lakes were surveyed (1991), as Stock Assessments to Ministry of Environment standards.

INVENTORIED LAKES

Callazon Lake (unnamed)
Clearwater Lake
Dina Lake #5 (unnamed)
Dina Lake #7 (unnamed)
Gataiga Lake (unnamed)
Lemoray Lake #1 (unnamed)
Shoal Lake #2 (unnamed)
Unnamed Lake (above Carbon Lake)

STOCK ASSESSED LAKES

Burden Lake
Dina Lake
Dina Lake #2 (unnamed)
Gantahaz Lake
Manson Lake (lower)
Manson Lake (upper)
Morfee Lake

SUMMARY OF POTENTIAL ENHANCEMENTS

BURDEN LAKE
1) Maintain current stocking program.

CALLAZON LAKE (unnamed)
1) Program to create a low use fishery, utilizing indigenous stocks.

CLEARWATER LAKE
1) No enhancements identified.

DINA LAKE
1) Development of a management plan.
2) Maintain current stocking program.
3) Breach beaver dams on inlet stream.
4) Install coarse fish barrier on inlet stream.
5) Habitat complexing of inlet stream.

DINA LAKE #2 (unnamed)
1) Maintain increased stocking level of 10,000 brook trout.
2) Investigate potential forest service recreation site development.

DINA LAKE #5 (unnamed)
1) No enhancements identified.

DINA LAKE #7 (unnamed)
1) Initiate stocking program of 2,500 brook trout and/or rainbow trout.
2) Forest Service Rec. Site development.

GANTAHAZ LAKE
1) Maintain current stocking program.
2) Gravel placement near boat launch.
3) Promote lake whitefish fishery.
4) Initiate a creel survey.

GATAIGA LAKE (unnamed)
1) No enhancements or stocking program recommended.
2) Continue to monitor and manage wild rainbow stocks.

LEMORAY LAKE #1 (unnamed)
1) No enhancements recommended at this time.

MANSON LAKE flower)
1) No enhancements recommended at this time.
2) Develop a program to determine status of lake trout, and rainbow trout stocks.
3) Investigate relationship between lake fish populations and Manson River stocks.
4) Investigate tributary fish populations, including Wolverine Lakes.

Summary of Enhancements Continued;

MANSON LAKE (upper)

1) No enhancements recommended at this time.
2) Develop a program to determine status of lake trout, and rainbow trout stocks.
3) Investigate relationship between lake fish populations and Manson River stocks.
4) Investigate tributary fish populations, including Wolverine Lakes.

MORFEE LAKE

1) Monitor current rainbow trout stocking program.
2) Continued management of native lake trout through conservative regulations.
3) Promotion of whitefish as a recreational sport fish.

SHOAL LAKE #2 (unnamed)

1) No enhancements recommended at this time.

UNNAMED LAKE (above Carbon Lake)

1) Initiate stocking program of 2,500 native rainbow trout.
2) Investigate small outlet creek to determine if system is closed.

BURDEN LAKE

Location:	35 km. Northwest of Mackenzie.
Management Unit:	7-29.
Present Access:	Gravel "main-haul" logging road.
Approximate Size:	2,471,000 sq. m.
Maximum Depth:	24.5 m.
Species Present:	rainbow trout, finescale suckers, lake chub.
Inlets/Outlets:	None
Elevation:	745 m.
Drainage:	Closed system.

Survey date: June 25. 1991.

One 15 hour net set yielded 31 rainbow trout (aver, length = 34.6 cm., aver, weight = 501 g.), 113 fine scale suckers, and 3 lake chub. Two minnow traps fished for a combined total of 41 hours yielded 14 fine scale suckers, and 174 lake chub. Angling results indicate a catch/unit effort value of approximately 1.0 fish/rod hour.

The short stream flowing to the sink hole offers no value as a beaver dam effectively blocks all upstream fish movement. No spawning habitat is available and the resulting spawnbound condition is evident.

Fish in this lake continue to feed regardless of their spawnbound condition. This was evidenced in stomach content analysis, and successful angling of gravid fish.

A stocking program is presently in place at Burden lake. A total of 5,000 rainbow trout were stocked in 1991.

Enhancement options:

1) Maintain current stocking program of native rainbow trout at the present level.

2) The potential exists to diversify the fishery through a brook trout stocking program.

Recommendations:

1) Maintain current stocking program with native rainbow trout.

2) Continue to monitor the fishery. Stock assessments to be conducted on 3 or 4 year schedules.

UNNAMED(CALLAZON)LAKE

Location:	35 km. Northeast of Mackenzie.
Management Unit:	7-31
Present Access:	Fly in, new logging road passes within 500 m. of lake, a low use trail was observed.
Approximate Size:	Not available at this time.
Maximum Depth:	21.4 m.
Species Present:	Barren of all fish species.
Inlets/Outlets:	Five inlets, one outlet.
Elevation:	1,289 m.
Drainage:	Unnamed (Callazon) Lake - Unnamed Creek - Pine River - Peace River.

Survey date: September 6, 1991.

One 13.5 hour net set, and two minnow traps fished for 13.5 hours yielded no fish. The lake is therefore believed to be barren of all fish species. The outlet extends approximately 100 m. from the lake before descending rapidly in a series of cascades. These cascades act as a barrier to upstream fish movement.

Two inlets, and the outlet provide a moderate degree of spawning habitat. Spawnbound problems would be unlikely and natural recruitment potentially high.

Oxygen readings taken during the winter of 90/91 indicate sufficient levels to support a fish population.

Enhancement options :

1) Development of a resident population;
   The outlet stream is not believed to be a barrier to downstream fish migration, therefore, a stocking program could impact the native fish species of the Pine river. A transplant program of a native species of Pine river donor stock is a viable option. A stock assessment to be performed, approximately three to four years after a transplant would be required to gauge the success of the transplant program.

2) If road access is created, gravel placement in key areas of the inlets and outlets could significantly increase natural recruitment.

Recommendations:

1) Investigate the Pine river system for suitable donor stocks.

2) Prepare a development proposal, if donor stock is found, for Transplant committee approval.

Recommendations continued:

3) Transplant appropriate donor stock species.

4) Introduce regulations closing the system to angling until a stock assessment study is performed indicating a population capable of withstanding a sport fishery.

5) Stock assessment should be performed three to four years post transplant. Dependant upon the results, a sport fishery, allowing harvest, could be initiated.

6) Contact Forest Service and request no recreation site development be initiated while the angling closure is in effect.

CLEARWATER LAKE

Location:	79 km. West of Chetwynd.
Management Unit:	7-31
Present Access:	Fly in. An old logging road following Callazon creek accesses the lake. This road is washed out in many places and therefore passable only to all terrain vehicles, motorbikes, horses, etc.
Approximate Size:	Not available at this time.
Maximum Depth:	3.5 m.
Species Present:	bull trout
Inlets/Outlets:	Two inlets, one outlet.
Elevation:	1,088 m.
Drainage:	Clearwater Lake - Clearwater Creek - Williston Lake (Peace Reach) - Peace River.'

Survey date: September 7. 1991.

One 15 hour (over night) net set yielded 26 bull trout (aver. length = 38.5 cm., aver. weight = 663 g.). Two minnow traps fished for 18 hours yielded no fish. Two anglers fishing for 1.5 hours yielded 4 bull trout.

Due to organics and low flows, the two inlets afford no spawning habitat potential. Bull trout were observed attempting to spawn in the area of the outlet, but successful egg deposition is unlikely.

The outlet consists of five beaver dams spread over the 100 m. distance to Clearwater Creek. These dams are temporal barriers to fish movement in either direction. The first beaver dam backs up the lake level approximately 1.0 m. This dam must not be breached as the water level would drop leading to a potential winter kill.

Oxygen samples taken during the winter of 90/91 revealed poor oxygen levels for sportfish.

Enhancement Options:

1) No enhancements identified.

Recommendations:

1) Manage this lake as a low use fishery. A winter kill occurrence is very possible. No stocking program recommended.

2) This appears likely to be an isolated monoculture population with little or no recruitment. As no enhancements are deemed feasible, emphasis must be placed upon regulation/protection.

DINA LAKE #1

Location:	25 km. North of Mackenzie.
Management Unit:	7-30
Present Access:	"Main-haul" gravel road, and good gravel road accessing Forest Service Rec. site at lake.
Approximate Size:	158.3 ha.
Maximum Depth:	25 m.
Species Present:	rainbow trout, brook trout, mountain whitefish, finescale suckers, redside shiners.
Inlets/Outlets:	One inlet.
Elevation:	695 m.
Drainage:	Internal. No outlets.

Survey date: June 9. 1991.

Two net sets fished for a combined total of 36 hours yielded 68 rainbow trout (aver. length = 29.7 cm., average weight = 411.9 g.), 1 mountain whitefish, and 255 finescale suckers. Two minnow traps fished for a combined total of 46 hours yielded 302 redside shiners, and 2 finescale suckers.

One angler fishing for two hours yielded 2 rainbow trout.

No present spawning habitat exists. A chronic spawn bound situation was apparent from carcass analysis. This may explain local anglers poor success rates. The inlet offers tremendous spawning and rearing potential. Approximately 100 spawning condition rainbow were observed attempting to gain access to this inlet. A series of five beaver dams have effectively blocked all upstream fish movement.

One hundred brook trout parr were observed in the first beaver pond immediately upstream of the lake. As it is unlikely these fish passed upstream into this pond, it is believed they have originated from Dina Lake #2, or are progeny of brook trout now residing in the stream.

Stomach content analysis of rainbow trout revealed a diet of fish. One specimen had eaten salmonids, however it was not possible to determine if the diet consisted of rainbow or brook trout. Large size rainbow trout are present in this lake. One net set captured a 2.6 kg. specimen

A rainbow trout and brook trout stocking program is in place for this lake. A total of 20,000 rainbow trout, and 32,000 brook trout were stocked in 1991.

Enhancement Options:

1) Maintain current stocking programs.

2) Breach beaver dams to allow fish passage to spawning habitat. Construct coarse fish barrier.

3) Gravel placement to supplement habitat in stream.

Recommendations:

1) Development of a management plan to oversee the recommendations outlined below. This plan should be developed in conjunction with the Mackenzie Forest Service.

2) Maintain current stocking program.

3) Breach beaver dams. Install a coarse fish barrier.

4) Implement a program of habitat complexing, to include stream gravel placement.

5) Assess natural recruitment.

UNNAMED (DINA #2) LAKE

Location:	25 km. North of Mackenzie.
Management Unit:	7-30
Present Access:	30 m. from good gravel road. Steep path leading from road to lake.
Approximate Size:	22.9 ha.
Maximum Depth:	13.7 m.
Species Present:	brook trout, rainbow trout, lake chub, finescale suckers.
Inlets/Outlets:	One outlet.
Elevation:	762 m.
Drainage:	Unnamed (Dina #2) Lake - Unnamed (Dina Creek) Creek - Dina Lake #1.

Survey date: June 20. 1991.

Two net sets fished for a combined total of 24 hours yielded 39 brook trout (aver, length = 25.6 cm., average weight = 252 g.), 1 rainbow trout, and 385 finescale suckers. Two minnow traps fished for a combined total of SO hours yielded 589 lake chub, and 18 finescale suckers. Two anglers fishing for 2 hours yielded 1 brook trout.

The outlet stream flows to Dina Lake #1. Beaver dams in the outlet stream are barriers to fish movement. A few fish have managed to pass these dams, as evidenced by the rainbow trout presence. This fish is thought to have originated from Dina #1. No spawning habitat was observed, yet spawn bound fish were not evident. This suggests successful shore egg deposition, or beaver dam circumvention.

Discussions with local anglers and a local Conservation Officer suggested extremely heavy angler use of the lake in the form of a 1990/91 ice fishery. Success rates were high, and have since decreased sharply.

Stomach content analysis revealed brook trout were targeting lake chub as a primary food source. The population of lake chub in the lake is substantial as seen with the minnow trap results.

This lake has an existing stocking program and was stocked with 10,000 brook trout in 1991.

Enhancement Options:

1) Maintain current stocking program, of brook trout.

Recommendations:

1) Do not stock with rainbow trout. Rainbow trout are present in numerous local lakes. Maintenance of mono-culture brook trout fishery is desirable.

2) Maintain stocking program at 10,000 fish per year.

3) Assess stocking program success every 3 to 4 years.

4) Discuss with Forest Service possible improvements to lake access and recreation site development.

5) Include lake in the Dina Lakes management plan.

UNNAMED (DINA #5) LAKE:

Location:	25 km. North of Mackenzie.
Management Unit:	7-30
Present Access:	Fly in. This lake is incorporated in the Forest Service Dina Lakes canoe chain recreation area.
Approximate Size:	Not available at this time.
Maximum Depth:	11.5 m.
Species Present:	northern squawfish, finescale suckers, largescale suckers, redside shiners.
Inlets/Outlets:	Two inlets, one outlet.
Elevation:	686 m.
Drainage:	Unnamed Lake (Dina #5) - Unnamed Creek -Unnamed Lake - Unnamed Creek - Heather Lake - Unnamed Creek - Williston Lake (Parsnip Reach) - Peace River.

Survey date: June 6. 1991.

One 22 hour net set yielded 45 redside shiners, 34 finescale suckers, 10 largescale suckers, 10 northern squawfish. Two minnow traps fished for 21 hours yielded 1 Cottid.

No spawning habitat was observed. Inlets and outlets are inaccessible due to beaver dams.

Oxygen samples indicated that only the first 3.5 m. of the water column was capable of supporting a sport fish population. Oxygen samples taken during the winter of 90/91 revealed acceptable levels for sportfish.

Enhancement Options:

1) No enhancements identified.

Recommendations:

1) A stocking program for this lake is not recommended.
2) Identify Dina #5 in the Dina Lakes management plan as a lake with low management priority.

UNNAMED (DINA #7) LAKE

Location:	25 km. North of Mackenzie
Management Unit:	7-30
Present Access:	Fly in. This lake is 50 m. from the Forest Service canoe circuit of the Dina Lakes.
Approximate Size:	Not available at this time.
Maximum Depth:	11.5 m.
Species Present:	Barren of all fish species.
Inlets/Outlets:	None.
Elevation:	686 m.
Drainage:	Closed system.

Survey date: June 5. 1991.

One 22 hour net set, and two minnow traps fishing for 22 hours yielded no fish. A spawnbound situation is inevitable as there are no inlets or outlets. This condition may be alleviated if brook trout are stocked as numerous gravel patches were observed in the lake.

High densities of large fresh water shrimp were observed.

Oxygen samples taken during the winter of 90/91 revealed levels sufficient to maintain a sportfish population.

Enhancement Options:

1) Low use fishery;
   An initial stocking of a maximum of 2,500 brook trout and/or rainbow trout. This initial population would be supplemented as required to maintain the low use fishery.

Recommendations:

1) Manage for a low use brook trout and/or rainbow trout fishery and stock accordingly.

2) Incorporate this lake into the Dina Lakes canoe chain recreation area. Post signs and create a one or two site camping and picnicking area on the Northeast shore. This would be undertaken by the Forest Service.

3) Incorporate this lake into the Dina Lakes management plan.

GANTAHAZ LAKE

Location:	5 km. North of Mackenzie.
Management Unit:	7-30
Present Access:	Road access, campsite and boat launch.
Approximate Size:	40.1 ha.
Maximum Depth:	11.6 m.
Species present:	brook trout, lake whitefish, and fish believed to be redside shiners.
Inlets/Outlets:	none.
Elevation:	730 m.
Drainage:	Closed system.

Survey date: June 22. 1991.

One 4 hour net set yielded 35 brook trout (aver, length = 32.4 cm., aver, weight = 655.7 g.), and 19 lake whitefish (aver, length = 34.9 cm., aver weight = 736.1 g.). Two minnow traps fished for a combined total of 15 hours yielded 316 redside shiners. Five anglers fishing for two hours yielded no fish.

This lake offers a large fish fishery for both brook trout, and lake whitefish. Surprisingly none of the regular anglers of this lake appear to have any knowledge of the whitefish presence.

Examination of the netted brook trout revealed a spawnbound condition in a portion of the population. The incidence of this condition is not believed to be prevalent throughout the population. Brook trout have been observed attempting to shore spawn at gravel shoals locations in the lake, including near the boat launch facility.

Gantahaz Lake presently receives annual stocking of brook trout. This year 15,000 were stocked.

Recommendations:

1) Maintain current stocking levels.

2) Place gravel at attempted shore spawning locations.

3) Promote lake whitefish fishery.

4) Monitor angler use and success through a creel survey.

UNNAMED(GATAIGA)LAKE

Location:	10 km. South of Mackenzie.
Management Unit:	7-30
Present Access:	Gravel road which accesses Forest Rec. site.
Approximate Size:	Not available at this time.
Maximum Depth:	12.0 m.
Species Present:	rainbow trout, northern squawfish, largescale suckers, peamouth chub, redside shiners, Cottids.
Inlets/Outlets:	Two inlets, one outlet.
Elevation:	706 m.
Drainage:	Unnamed (Gataiga) Lake - Gataiga Creek - Williston Lake (Parsnip Reach) - Peace River.

Survey date: May 31. 1991.

One 24 hour net set yielded 38 rainbow trout (aver, length = 23.2 cm., aver, weight = 137.5 g.), 80 peamouth chub, 6 northern squawfish, and 40 largescale suckers. Two minnow traps fished for 25 hours yielded 20 redside shiners, 1 largescale sucker, 1 peamouth chub, and 1 Cottid. Two anglers fishing for 1.25 hours yielded 4 rainbow trout.

The inlets and outlet offer no spawning habitat. Beaver dams have blocked access to, or flooded, any locations suitable for spawning. A number of the rainbow trout examined had successfully released their eggs. This would suggest the presence of an underwater spring spawning location, or fish passage through the beaver dams at outlet and spawning in Gataiga Creek.

A multi-unit Forest Service recreation site is located on the Southwest shore. This is a well maintained popular area.

Discussions with local anglers indicated poor fishing most of the year and no fish over 500 g. Anglers suggest this is not their first choice lake for fishing, but is a good family picnic/ children fishing lake.

Recommendations:

1) Continue to monitor and manage the wild rainbow trout stock present.

UNNAMED (LEMORAY #1) LAKE

Location:	35 km. East of Mackenzie.
Management Unit:	7-22
Present Access:	Fly in. Future road access doubtful.
Approximate Size:	Not available at this time.
Maximum Depth:	20 m.
Species Present:	Barren of all fish species.
Inlets/Outlets:	Two inlets, one outlet.
Elevation:	1,485 m.
Drainage:	Unnamed (Lemoray #1) Lake - Unnamed Creek - Mountain Creek Pine River - Peace River.

Survey Date: September 8. 1991.

Fourteen hour net sets were deployed at two locations on the lake. Two minnow traps were fished for 13 hours. No fish species were captured indicating a lake barren of fish.

Approximately 150 m. from the lake the outlet drops rapidly in a series of cascades. These cascades, and falls observed from a helicopter, are upstream fish migration barriers. A 15 m. long inlet stream flowing into lake #1 from lake #2 is not a barrier to fish.

Very little spawning habitat was observed. Unknown if spawning habitat is present for lake #2. Fresh water shrimp were observed.

Oxygen samples taken during winter of 90/91 revealed sufficient levels to maintain a sportsfish population.

Enhancement Options:

1) Low use fishery;
   It is unknown if the outlet stream is a barrier to downstream fish movement. Since the outlet drains to the Pine River, a transplant program involving donor stock from the Pine River system maybe a viable option.

Recommendations:

1) Perform Lake Inventory studies on the 2nd and 3rd lakes of this system.

2) At present this is an extremely remote site with no easy access. Public use will be minimal. Therefore, this lake is not recommended as a high priority transplant/stocking candidate.

3) If a "Top of the World Park" type of development is in the future for this lake, a transplant program, and management should be aimed toward a low use fishery.

3) Contact Forest Service to determine if a Rec. site or trail development is possible, after fishery plan is in place.

MANSON LAKE (LOWER)

Location:	85 km. Northwest of Mackenzie
Management Unit:	7-28
Present Access:	Gravel "main-haul" logging road.
Approximate Size:	222.5 ha.
Maximum Depth:	39 m.
Species Present:	rainbow trout, lake trout, bull trout, mountain whitefish, lake whitefish, pygmy whitefish, northern squawfish, largescale suckers, finescale suckers, peamouth chub, and Cottids. Not observed, but believed present, redside shiners, and burbot.
Inlets/Outlets:	Two inlets, one outlet.
Elevation:	865 m.
Drainage:	Manson Lake (Lower) - Manson River - Williston Lake (Parsnip Reach) - Peace River.

Survey date: July 6. 1991.

One net set fished for 17 hours yielded 1 rainbow trout, 5 lake trout, 2 lake whitefish, 2 mountain whitefish, 3 pygmy whitefish, 8 finescale suckers, 2 largescale suckers, 15 peamouth chub, 1 Cottid, and 3 northern squawfish. Two minnow traps fished for a combined total of 34 hours yielded 5 Cottids. Two anglers fishing for 7.5 hours yielded 15 rainbow trout, 4 bull trout, 11 whitefish, and 1 northern squawfish. All angled fish were captured at inlets and outlets. The fish appear to be concentrated at these locations. Angler success is very poor at any location on this lake other than the inlets and outlet. The inlets and outlet provide excellent spawning and rearing habitat.

A Forest Service Rec. Site located at Upper Manson Lake attracts anglers which fish both lakes.

Recommendations:

1) Further investigations are required to determine the present status of rainbow, and lake trout stocks.

MANSON LAKE (UPPER)

Location:	85 km. Northwest of Mackenzie.
Management Unit:	7-28
Present Access:	Gravel "main-haul" logging road.
Approximate Size:	216.5 ha.
Maximum Depth:	48.5 m.
Species Present:	rainbow trout, lake trout, burbot, bull trout, lake whitefish, mountain whitefish, pygmy whitefish, largescale suckers, finescale suckers, peamouth chub, redside shiners, and Cottids. Not observed, but believed present; northern squawfish.
Inlets/Outlets:	One inlet, one outlet.
Elevation:	873 m.
Drainage:	Manson Lake (Upper) - Manson River - Manson Lake (Lower) - Manson River - Williston Lake (Parsnip Reach) - Peace River.

Survey date: July 4, 1991.

Two net sets fished for a combined total of 20 hours yielded 9 rainbow trout, 1 bull trout, 3 lake trout, 12 mountain whitefish, 1 lake whitefish, 6 pygmy whitefish, 4 peamouth chub, 6 largescale suckers, and 3 finescale suckers. Two minnow traps fished for a combined total of 34 hours yielded 1 burbot, and 1 redside shiner. Two anglers fishing for six hours yielded 11 rainbow trout, 1 lake trout, 1 Dolly Varden, and 2 mountain whitefish.

Upper Manson Lake is divided into two basins by a narrow 100 m. long stream. The gravel substrate of this channel is not optimal, but adequate for spawning purposes. Numerous redds were observed and egg to fry survival is likely. The inlet and outlet are sections of the Manson River. Spawning and rearing habitat are assured, how far the fish migrate to spawn is unknown.

A Forest Service Rec. Site is located on the East shore of the lower basin. This facility offers 8 sites, complete with picnic tables. Discussions with local anglers indicated use of the site, and fishing pressure is high. Discussions also indicated that Lake Trout were targeted and fished for heavily. An angler from Texas was fishing for grayling in the outlet, with no success.

Recommendations:

1) Further investigations are needed in order to determine the present status of rainbow and lake trout stocks.

MORFEE LAKE

Location:	This lake is situated within the city limits of Mackenzie.
Management Unit:	7-30
Present Access:	Numerous gravel roads access this lake at six locations.
Approximate Size:	279.2 ha.
Maximum Depth:	44.2 m.
Species Present:	rainbow trout, lake trout, mountain whitefish, lake whitefish, largescale suckers, finescale suckers, northern squawfish, peamouth chub, and Cottids.
Inlets/Outlets:	One inlet, one outlet.
Elevation:	732 m.
Drainage:	Morfee Lake - Unnamed Creek - Mugaha Creek - Williston Lake (Parsnip Reach) - Peace River.

Survey date: June 11. 1991.

Two net sets fished for a combined total of 16 hours yielded 26 rainbow trout (aver, length = 22.9 cm., average weight = 167.2 g.), 6 lake trout, 47 mountain whitefish, 3 lake whitefish, 59 largescale suckers, 17 finescale suckers, 24 peamouth chub, and 12 northern squawfish. Two minnow traps each fished for 24 hours yielded 2 Cottids, 5 peamouth chub, and 2 northern squawfish. Four anglers fishing for 4 fours yielded 18 rainbow trout.

At time of survey the inlet had good flow. This inlet may be a source of natural recruitment as spawning habitat was present. The outlet presents some spawning potential from introduced gravel. Rainbow trout have been observed in spawning condition here, however they have been far outnumbered by coarse fish.

This lake is a multi use recreational area with high use of the fishery resource. A stocking program of native rainbow trout is presently in place.

Recommendations:

1) Maintain current stocking program.

2) Investigate inlet in Spring at height of spawning cycle and assess potential spawning habitat enhancements.

UNNAMED (above Carbon Lake) LAKE

Location:	30 km. West of Hudson's Hope.
Management Unit:	7-31
Present Access:	Fly in. Rough trail from Carbon Lake.
Approximate Size:	Not available at this time.
Maximum Depth:	9.5 m.
Species Present:	No fish species found.
Inlets/Outlets:	One intermittent inlet, one outlet.
Elevation:	1,387 m.
Drainage:	Unnamed Lake - Unnamed Creek - Carbon Creek - Williston Lake (Peace Reach) - Peace River.

Survey date: July 23. 1991.

One 5 hour net set, and two minnow traps fished for 5 hours yielded no fish.

The outlet is a very small,(< 1 cfs) very steep, at times subterranean, creek. These features have produced an outlet impassable to upstream fish movement. Downstream movement of fish is highly unlikely, but not certain. If downstream fish migration of a few juveniles is possible, stocked juveniles would ultimately end up in Carbon Creek. Carbon Creek has had stocks augmented by a stocking program of rainbow trout (1990, 1991, 1992) and kokanee (1990, 1991, 1992). '

A spawnbound situation is inevitable if a stocking program is undertaken. Moderate densities of freshwater shrimp were observed.

The owners of Carbon Lake Lodge have expressed an interest in improving the trail, promoting hiking to, and angling of, the unnamed lake. Carbon Lake Lodge is 1.5 hours hiking distance from the unnamed lake.

Oxygen samples taken during the winter of 90/91 indicate sufficient levels for a fish population.

Recommendations:

1) Initial stocking of 2,500 rainbow trout with 500 fish supplemented at 3 year intervals is recommended.

2) Discuss with Forest Service the potential of trail improvement and Rec. Site for this lake.

3) Investigate outlet at height of spring run-off to confirm if the outlet is a barrier to downstream fish movement. If confirmed a barrier, other species such as brook trout, and Yellowstone cutthroat trout could be considered.